
SUMMER 2008
innovativeHOME
Green Building + Modern Design
150
Top Sustainable Solutions
Green Products for Inside and Out
PLUS:
How to Sustainably Spruce Up Outdoor Spaces
Your Guide to Energy-Efficient Window Shopping
9 Eco-Fab Furnishing Finds that Add Panache to Any Pad
Reduce, Reuse, REGREEN with New Remodeling Guidelines
$12.95
82
0 71486 02900 7

Diamond in the Rough

Sited in the California desert, this organic home not only flourishes in its harsh landscape but also breathes resources back into the environment, even bringing water—in the form of an aquarium-style lap pool—to the arid terrain.

» by STEPHANIE**AURORA**LEWIS, images by **DAVID**GLOMB

SNUGGLED INTO A DELIGHTFUL DESERT SPOT IN RANCHO MIRAGE, CALIFORNIA, ARCHITECT ANA ESCALANTE, FOUNDER OF ESCALANTE ARCHITECTS, INTRODUCES "AN UNPRETENTIOUS HOME" WHOSE BRILLIANT, SUSTAINABLE DESIGN MIMICS HOW NATURE RECONCILES COZY SHELTERS. In fact, one may wonder where the desert's landscape stops and the house begins. Escalante draws from ecological ideas such as passive solar ventilation and cooling that offer her client an organic home that breathes resources back into nature.

The client, Robert Greenbaum, is a film producer with very strong green initiatives for both his home and lifestyle. He commissioned Escalante as his architect with two parameters: a carbon neutral footprint and a lap swimming pool. To incorporate a lap swimming pool within a three-bedroom house on a tight site was Escalante's first hurdle. "Before I went to the drawing boards, I met again with Greenbaum in a plea for him to reconsider the size of the swimming pool," Escalante says. Quite adamant, he insisted that his life faithfully centers on swimming daily for hours, often up to five miles per day.

Built low into the site, the home captures valuable energy savings via the sustainable technique of earth berming. As a movement away from traditional grass plantings, the native desert landscaping is a valuable water conservation device.

Beyond the modernist floating stairs is the kitchen with pure concrete floors, Australian bamboo cabinetry, and gorgeous recycled glass terrazzo countertops. **Opposite page:** Portals into the lap swimming pool afford visitors a glimpse into Greenbaum's favorite pastime. At night, the interior spaces are illuminated by flickering lights that filter through moving water.

"To take care of Greenbaum's green parameter, I needed to reduce the building's heating load because air-conditioning is the greatest carbon-depleting function in a home," Escalante explains. To moderate the heat via environmentally passive methods, both the swimming pool's water and the soil from a method called "earth berming" draw heat away from the building thermally. "Temperatures inside remain at 75 degrees while the desert outside is 145 degrees," Escalante continues. Earth berms surround approximately 40 percent of the building. "The recess into the ground is hardly perceived because the entrance walkway approaches the home in a very subtle downward slope," Escalante says.

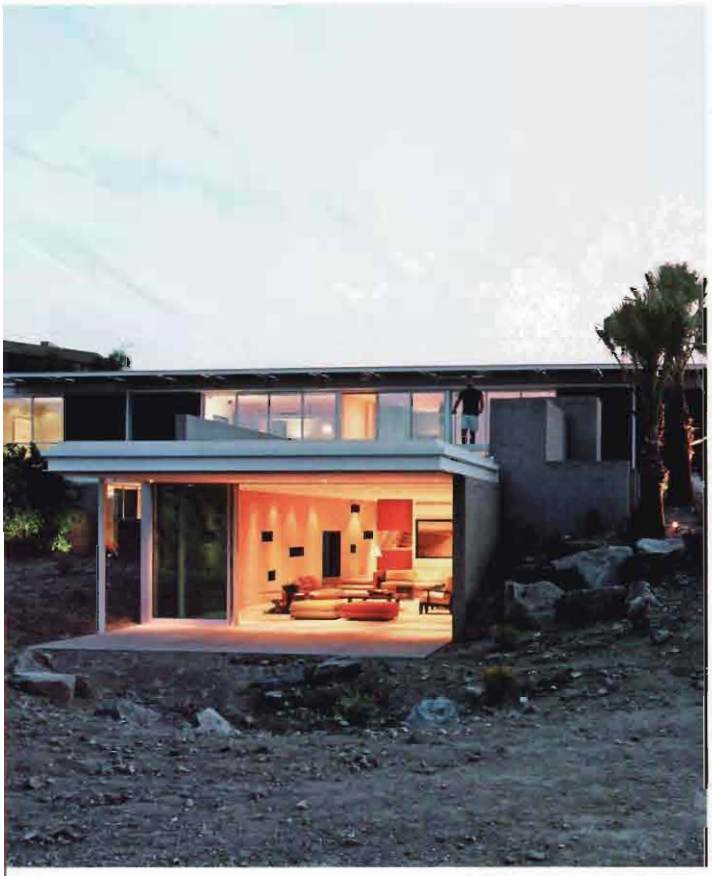
Escalante solved the constrained site problem by creating a sculptural home that bridges the swimming pool. "Because swimming in the summer is a recipe for melanoma and because the summer heat is so intense, we decided that it would be best to bridge much of the home over the swimming pool," Escalante says. Early in the schematic design phase, Escalante was with her children at SeaWorld when the idea came to her to incorporate the large lap swimming pool as an aquarium. The swimming pool is nestled into the middle of the first floor of the building. As such, portal windows allow views of Greenbaum swimming endless laps. At other times, the interior spaces are illuminated by flickering lights that filter through moving water. Poetically, inhabitants are allowed an exclusive glimpse into the film producer's cherished pastime.

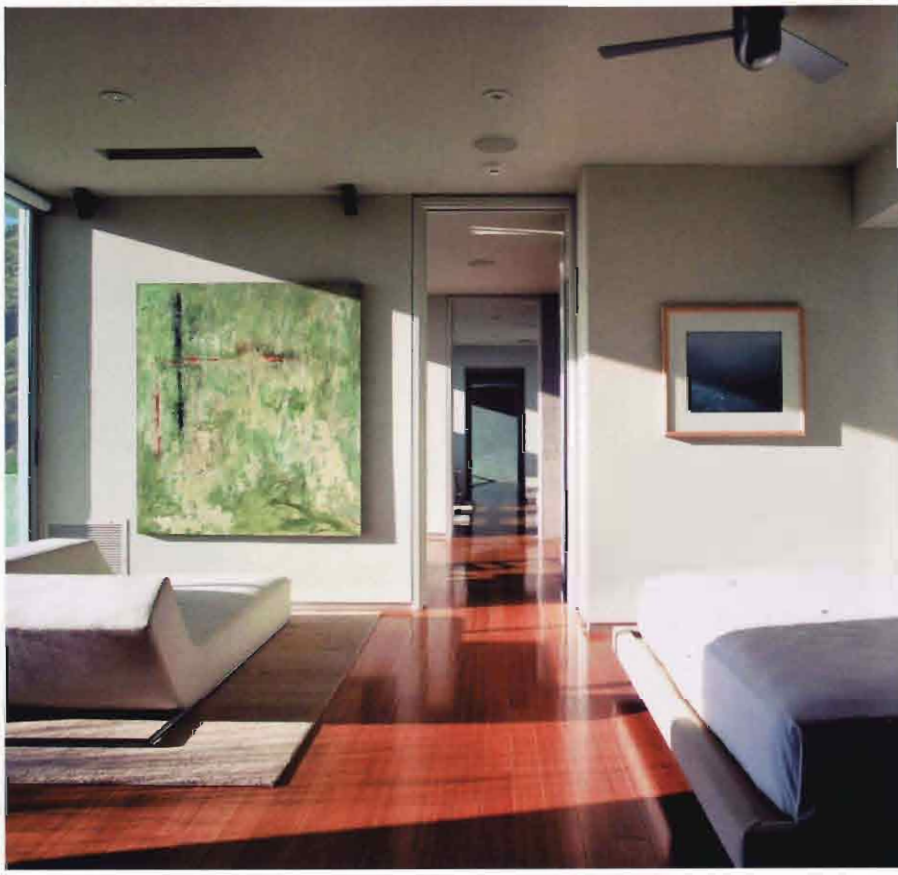
When selecting green materials, Escalante utilizes genuine scientific data along with trial and error. Proven both by experience and reason, she determined that exterior concrete masonry unit (CMU) walls effectively deter heat from entering the interior spaces. "When one side of the wall is hot from the desert midday sun, the other side remains cool. As evening sets in, the heat leaves from the side into which it originally penetrated the block, always helping keep the interior cool," Escalante explains. Insulating the exterior walls and roof are often the first steps toward creating an authentic zero-emissions building. Using CMU as the primary building material, Escalante took steps from which most architects would shy away when she literally drew each block by hand on the floor plans, sections, and elevations to ensure that no block would be cut in order to significantly reduce construction waste.

Dusk reveals a few of Escalante's design concepts, such as strategically planned lighting, translucency, earth berming, exposed steel structures throughout, and stucco covered CMU exterior walls. **Opposite page:** Greenbaum and his visitors enjoy the unique beauty of the desert's natural ecosystem through the large window at the far end of the living room. Inside, all the finishes were selected based upon their green values.

AT A GLANCE: Main Green Features

- 110 energy-producing roof-mounted photovoltaic panels
- Solar panels that heat the swimming pool
- Australian farmed bamboo kitchen cabinets
- Australian farmed bamboo wood flooring
- Honed-finish concrete floors with no added toxic pigments
- Green terrazzo countertops made with recycled glass and cement
- Interior finishes that do not contain any off-gassing formaldehyde
- Heavy mass exterior walls that guard the home against intense desert heat
- Swimming pool and earth berms that transfer most of the heat transmission passively due to the thermal coupling properties of the earth and water
- Sustainable landscaping with native desert plantings that conserve water
- Modest square footage that reduces construction waste
- Precise quantities of architectural materials that prevented not even one CMU block from being wasted
- High-performance glazing and thermally broken windows with exterior louvers on the east façade that minimize heat gain
- Supplemental windows that provide natural lighting, minimizing electricity demand





This page left: With one wall being all glass, the boundaries between desert and home are blurred. **This page right:** Additional windows flood the home with natural lighting. The simple, elegant lines of the bamboo flooring and the pure white walls professionally display Greenbaum's private art collection. **Opposite page:** A burst of sunlight in the bathroom enlivens the floor-to-ceiling recycled glass tiles and the floating Australian bamboo vanity.

By strict standards, all the materials and products in the house were chosen as either recycled by-products, renewable resources, or low-embodied-energy materials. Low-embodied-energy materials require less total energy to extract, manufacture, transport, construct, maintain, and dispose of. Wonderfully stunning is the green terrazzo kitchen countertop, composed of recycled glass and a cementitious bonding agent with a honed finish. "You can even see the remains of a recycled Coke bottle in one area of the countertop," Escalante remarks. The kitchen cabinetry is made of Australian farmed bamboo, a commonly used renewable resource. She avoids using bamboo harvested from China, where the depletion of this natural resource threatens the panda bear's habitat. Escalante dares anyone to find a trace of harmful toxins and formaldehyde in any of the interior finishes.

Water is a precious resource, especially in the desert. Therefore, Escalante felt it was necessary to establish a sustainable landscape both to conserve water and to celebrate the beauty of the arid, succulent ecosystem. In order to bring the home's natural desert surroundings back to the surface, the first process was to remove the layers of topsoil and green grass that were previously added to the site. From underneath, rock was redeemed and substantial native soils revealed. "People do not want to come to live here in the desert to then be sheltered from it. They want to be surrounded by the desert; this is why they chose to live here," Escalante says. To celebrate the splendor of the landscape, much of the outdoor spaces and the building's windows are positioned to afford picturesque views of the landscaping for the inhabitants. "In a way, the outdoor space is captured by these views as additional living space," Escalante explains.

Escalante designed the home to produce its own electricity through a unique system she herself invented. The system consists of a steel structure suspended from the white membrane roofing, into which photovoltaic (PV) cells that convert sunlight into useable electricity are placed. The single most important aspect of her invention is the steel grid that allows air to circulate below the cells. Without the extra ventilation, most PV cells will short-circuit in desert heat. Escalante's scientific data consistently shows that the PV cells at the Greenbaum residence produce electricity at an 80 to 90 percent capacity and throw 50 percent excessive electricity back into the electric utility grid. "You can stand there and actually watch the meter roll backwards; it's great," Escalante exclaims.

Both so proud of the green home that boasts no airs, Escalante and Greenbaum jest over where to bury their ashes on the site. In particular, Escalante visits her ecological masterpiece monthly so she can conduct tours and indulge in its simple grandeur. Greenbaum is so entirely satisfied with his innovative home that he plans to dwell there indefinitely. Indeed, this "unpretentious home" is as elegant and sophisticated as the Rancho Mirage desert into which it blends.